

Acute Phase Response  
Cancer  
Cardiovascular Disease  
Cytokines, Chemokines, and Growth Factors  
Neurology  
Toxicology  
Infectious Disease  
Immunoglobulin Isotyping  
Signal Transduction

# Bio-Plex Pro Mouse Chemokine Assays

BCA-1/CXCL13, CTACK/CCL27, ENA-78/CXCL5, eotaxin/CCL11, eotaxin-2/CCL24, fractalkine/CX3CL1, GM-CSF, I-309/CCL1, IFN- $\gamma$ , IL-1 $\beta$ , IL-2, IL-4, IL-6, IL-10, IL-16, IP-10/CXCL10, I-TAC/CXCL11, KC/CXCL1, MCP-1/CCL2, MCP-2/CCL8,\* MCP-3/CCL7, MCP-5/CCL12, MDC/CCL22, MIP-1 $\alpha$ /CCL3, MIP-1 $\beta$ /CCL4, MIP-2/CXCL2, MIP-3 $\alpha$ /CCL20, MIP-3 $\beta$ /CCL19, RANTES/CCL5, SCYB16/CXCL16, SDF-1 $\alpha$ /CXCL12, TARC/CCL17, TECK/CCL25, TNF- $\alpha$   
\* Recommended serum sample dilution: 2,000-fold.

MAGNETIC SEPARATION ENABLED

- All-in-one 31-plex panel
- Single-level quality control
- Magnetic workflow

## High-Performance Multiplex Immunoassays for Research

Cytokines and chemokines are a host of extracellular mediators and regulators within a signaling network between cells and are key modulators of inflammation, participating in acute and chronic conditions via a complex network of interactions. The Bio-Plex Pro Mouse Chemokine Assays are designed for the quantification of a panel of 34 cytokines, chemokines, and growth factors in serum, plasma, culture supernatant, and many other sample types.

### Assay Features

- Magnetic beads for simplified plate processing
- Single-level quality control with kit lot-specific ranges
- Assay quick guide to get you started right away
- Compatible with Bio-Plex 200, Bio-Plex 3D, and Bio-Plex MAGPIX Systems

### Rigorous Assay Validation

All Bio-Plex Pro Assays undergo rigorous evaluation that includes the following parameters:

- Specificity (cross-reactivity)
- Accuracy (recovery) in key sample matrices
- Inter- and intra-assay precision

- Sensitivity (limit of detection [LOD])
- Assay working range (lower and upper limits of quantification [LLOQ/ULOQ])
- Linearity of dilution
- Parallelism and matrix effect
- Performance characteristics in real samples

### Assay Performance Definitions

The following parameters are indicative of assay performance, as shown in Table 1.

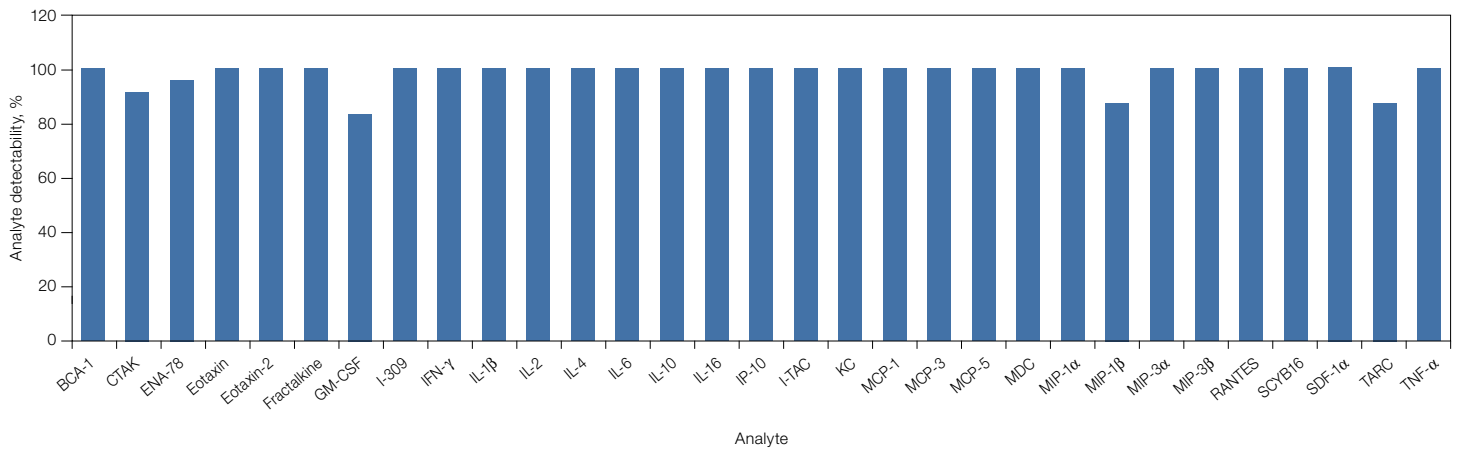
- **Assay working range** — the range of concentrations within which the assay is precise and accurate. Boundaries of the assay working range are defined by the LLOQ and ULOQ
- **Precision** — the percentage coefficient of variation (%CV) at concentrations within the assay working range
- **Accuracy (recovery)** — percentage of the observed concentration relative to the expected concentration of a known amount of analyte within the assay working range
- **Sensitivity (LOD)** — the concentration of analyte for which the fluorescence intensity signal is 2 standard deviations above the background signal

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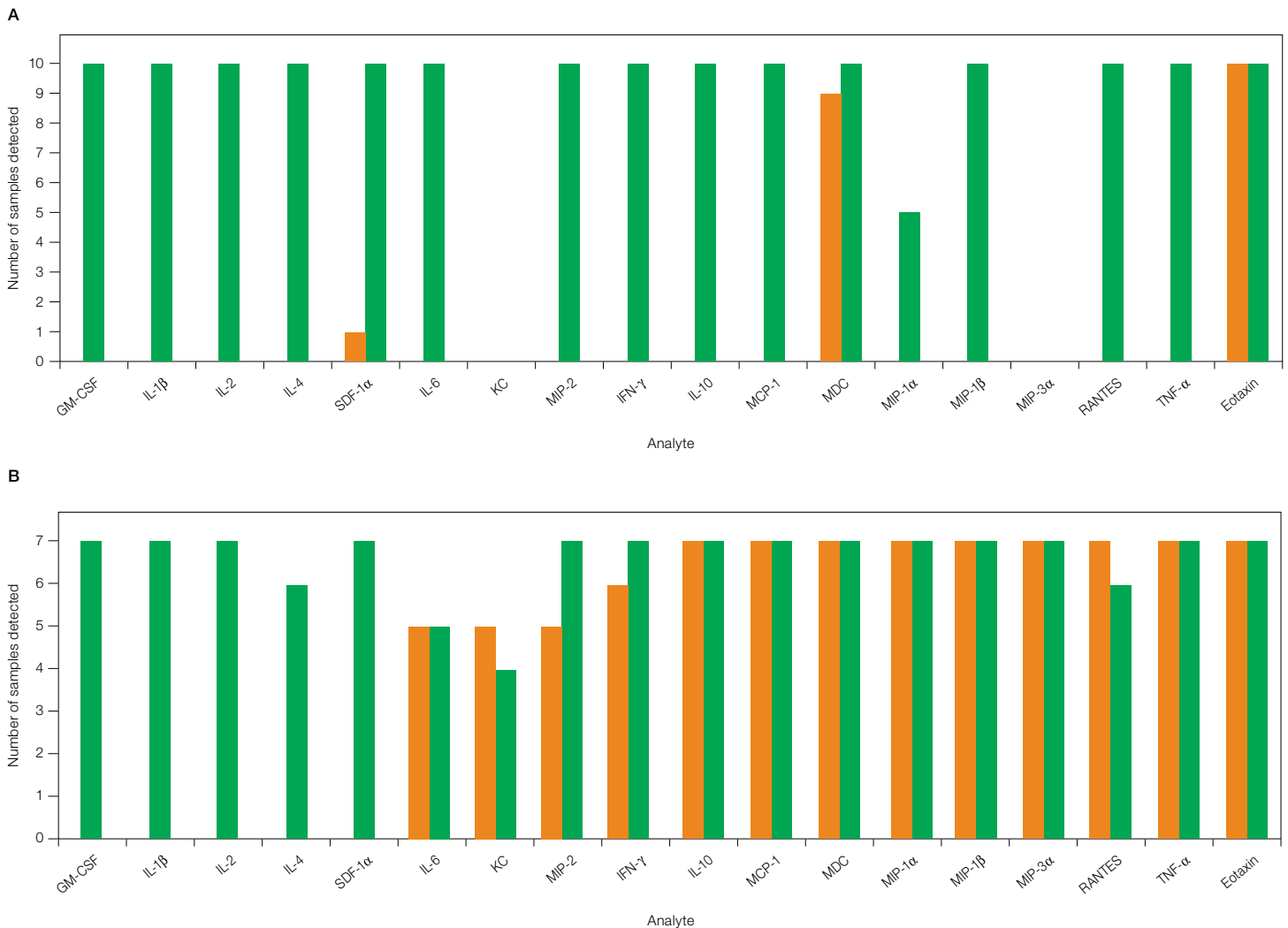
**Table 1. Representative performance characteristics.**

Analyte	Assay Working Range, pg/ml		Assay Sensitivity, pg/ml	Singleplex Bead Region
	LLOQ*	ULOQ*	LOD*	
BCA-1/CXCL13	7.22	5,175	≤3.7	28
CTACK/CCL27	30.94	289,593	≤7.6	62
ENA-78/CXCL5	8.66	81,052	≤5.7	20
Eotaxin/CCL11	0.56	1,291	≤0.3	74
Eotaxin-2/CCL24	3.58	23,453	≤3.6	73
Fractalkine/CX3CL1	10.02	50,504	≤3.6	25
GM-CSF	0.37	3,498	≤0.1	22
I-309/CCL1	0.67	2,748	≤0.5	26
IFN-γ	2.18	20,382	≤0.4	34
IL-1β	13.91	70,131	≤6.9	19
IL-2	0.86	8,096	≤0.2	36
IL-4	3.75	6,135	≤1.9	39
IL-6	1.10	10,240	≤0.8	38
IL-10	32.29	71,217	≤19	56
IL-16	22.33	52,270	≤11	29
IP-10/CXCL10	171.30	100,233	≤89	35
I-TAC/CXCL11	25.91	6,633	≤28	37
KC/CXCL1	4.90	11,473	≤2.7	57
MCP-1/CCL2	17.12	56,990	≤15	51
MCP-2/CCL8	1.19	2,266	≤0.6	42
MCP-3/CCL7	1.07	1,338	≤0.8	46
MCP-5/CCL12	0.52	4,851	≤0.1	48
MDC/CCL22	0.32	3,025	≤0.1	52
MIP-1α/CCL3	0.33	3,071	≤0.2	77
MIP-1β/CCL4	5.49	41,738	≤2.1	75
MIP-2/CXCL2	16.93	30,332	≤13.7	27
MIP-3α/CCL20	1.07	4,379	≤1.1	12
MIP-3β/CCL19	28.75	50,927	≤19	64
RANTES/CCL5	0.72	6,745	≤0.1	55
SCYB16/CXCL16	0.32	2,989	≤0.3	65
SDF-1α/CXCL12	9.56	48,205	≤6.4	67
TARC/CCL17	3.38	19,748	≤2.7	63
TECK/CCL25	4.82	79,042	≤2.4	78
TNF-α	2.66	24,906	≤0.3	21

\* The LLOQ, ULOQ, and LOD are mean data determined from three independent multiplex assays in a serum-based matrix. LLOQ and ULOQ are defined as the boundary standard curve points within which the performance specifications of individual standard points were met for a 10% intra-assay CV and recovery range of 70–130%. Data were generated using the magnetic workflow with the Bio-Plex Pro Wash Station.



**Fig. 1. Analyte detectability.** The data shown are for 39 samples using the Bio-Plex Pro Mouse Chemokine 31-Plex Panel in 24 different mouse samples, such as normal mouse serum, normal mouse plasma, and serum and plasma from lipopolysaccharide-challenged mice. The average analyte detectability was 98%. Analyte detectability is defined as the percentage of samples that are detected within the working assay range for an analyte.



**Fig. 2. Competitive comparison.** Serum samples from ten normal mice (A) and seven lipopolysaccharide-challenged mice (B) were used in this study to compare analyte detectability between Bio-Plex and another multiplex chemokine assay, Vendor A's 19-plex. The average analyte detectability of Vendor A's 19-plex assay (orange) was 34% while that of the Bio-Plex Pro Mouse Chemokine Panel (green) was 90%, which detected 56% more sample data.

## Ordering Information

Catalog #	Description	Catalog #	Description
12009159	<b>Bio-Plex Pro Mouse Chemokine 31-Plex Panel</b> , 1 x 96-well, includes coupled magnetic capture beads, premixed detection antibodies, standards, single-level quality control, detection antibody diluent HP, standard diluent, sample diluent, assay buffer, 10x wash buffer, streptavidin-phycoerythrin, 96-well flat bottom plate, sealing tape, and instructions for the detection of BCA-1/CXCL13, CTACK/CCL27, ENA-78/CXCL5, eotaxin/CCL11, eotaxin-2/CCL24, fractalkine/CX3CL1, GM-CSF, I-309/CCL1, IFN- $\gamma$ , IL-1 $\beta$ , IL-2, IL-4, IL-6, IL-10, IL-16, IP-10/CXCL10, I-TAC/CXCL11, KC/CXCL1, MCP-1/CCL2, MCP-3/CCL7, MCP-5/CCL12, MDC/CCL22, MIP-1 $\alpha$ /CCL3, MIP-1 $\beta$ /CCL4, MIP-3 $\alpha$ /CCL20, MIP-3 $\beta$ /CCL19, RANTES/CCL5, SCYB16/CXCL16, SDF-1 $\alpha$ /CXCL12, TARC/CCL17, TNF- $\alpha$ .		
<b>Reagent Kits and Singleplex Assays</b>			
12002798	<b>Bio-Plex Pro Reagent Kit V</b> , 1 x 96-well, includes detection antibody diluent HP, standard diluent, sample diluent, assay buffer, 10x wash buffer, streptavidin-phycoerythrin, flat bottom plate, and sealing tape		
12005847	<b>Bio-Plex Pro Reagent Kit V</b> , 10 x 96-well, includes detection antibody diluent HP, standard diluent, sample diluent, assay buffer, 10X wash buffer, streptavidin-phycoerythrin, flat bottom plate, and sealing tape		
12002247	<b>Bio-Plex Pro Mouse Chemokine MCP-2/CCL8 Set</b> , 1 x 96-well		
12002254	<b>Bio-Plex Pro Mouse Chemokine MIP-2/CXCL2 Set</b> , 1 x 96-well		
12002260	<b>Bio-Plex Pro Mouse Chemokine TECK/CCL25 Set</b> , 1 x 96-well		
<b>Standards</b>			
12002796	<b>Bio-Plex Pro Mouse Chemokine Standards</b> , 1 vial, lyophilized mixture of 34 standard analytes includes BCA-1/CXCL13, CTACK/CCL27, ENA-78/CXCL5, eotaxin/CCL11, eotaxin-2/CCL24, fractalkine/CX3CL1, GM-CSF, I-309/CCL1, IFN- $\gamma$ , IL-1 $\beta$ , IL-2, IL-4, IL-6, IL-10, IL-16, IP-10/CXCL10, I-TAC/CXCL11, KC/CXCL1, MCP-1/CCL2, MCP-2/CCL8, MCP-3/CCL7, MCP-5/CCL12, MDC/CCL22, MIP-1 $\alpha$ /CCL3, MIP-1 $\beta$ /CCL4, MIP-2/CXCL2, MIP-3 $\alpha$ /CCL20, MIP-3 $\beta$ /CCL19, RANTES/CCL5, SCYB16/CXCL16, SDF-1 $\alpha$ /CXCL12, TARC/CCL17, TECK/CCL25, TNF- $\alpha$ .		
		<b>Wash Stations and Accessories</b>	
		30034376	<b>Bio-Plex Pro Wash Station</b> , microplate wash station for magnetic bead-based assays, includes magnetic plate carrier, waste bottle, 2 liquid bottles
		171020100	<b>Bio-Plex Handheld Magnetic Washer</b> , includes magnetic washer and adjustment hex tools for use in manual wash steps for all Bio-Plex Magnetic Assays
		171025001	<b>Bio-Plex Pro Flat Bottom Plates</b> , pkg of 40 x 96-well plates, for use with Bio-Plex Pro Wash Stations when using magnetic bead-based assays
		<b>Software</b>	
		171001513	<b>Bio-Plex Data Pro Software</b> , 5 seats, for multi-experiment analysis and advanced data visualization
		171STND01	<b>Bio-Plex Manager Software</b> , 1 user desktop license, for analysis of Bio-Plex data and generation of protocols; does not operate the instrument
		<b>Additional Recommended Bio-Plex Assays for Studying Mouse Chemokines</b>	
		M60009RDPD	<b>Bio-Plex Pro Mouse Cytokine 23-Plex Panel</b> , for the detection of eotaxin, G-CSF, GM-CSF, IFN- $\gamma$ , IL-1 $\alpha$ , IL-1 $\beta$ , IL-2, IL-3, IL-4, IL-5, IL-6, IL-9, IL-10, IL-12 (p40), IL-12 (p70), IL-13, IL-17A, KC, MCP-1 (MCAF), MIP-1 $\alpha$ , MIP-1 $\beta$ , RANTES, TNF- $\alpha$
		M60000007A	<b>Bio-Plex Pro Mouse Cytokine 8-Plex Panel</b> , for the detection of GM-CSF, IFN- $\gamma$ , IL-1 $\beta$ , IL-2, IL-4, IL-5, IL-10, TNF- $\alpha$
		M6000003J7	<b>Bio-Plex Pro Mouse Cytokine Th1/Th2 Panel</b> , for the detection of GM-CSF, IFN- $\gamma$ , IL-2, IL-4, IL-5, IL-10, IL-12 (p70), TNF- $\alpha$
		171W4001M	<b>Bio-Plex Pro TGF-<math>\beta</math> 3-Plex Panel</b> , for the detection of TGF- $\beta$ 1, TGF- $\beta$ 2, TGF- $\beta$ 3

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